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Microtriatoma trinidadensis (Lent, 1951) (Hemiptera, Reduviidae, Triatominae): first record in the state of Amazonas, Brazil

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Abstract

Microtriatoma trinidadensis (Lent, 1951), previously known from Venezuela, Colombia, Suriname, Peru, Bolivia, and the Brazilian states of Mato Grosso, Pará, and Tocantins, is reported for the first time in Amazonas state, Brazil. We found in the collection of the Instituto Nacional de Pesquisas da Amazônia an unidentified female specimen of *Microtriatoma*. The specimen was collected in April 2010, in dried straw and foliage of açai palm, *Euterpe precatoria* Mart., from Monte Sião, municipality of Codajás, Amazonas state.

Keywords

Chagas disease, new record, triatomines.

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Introduction

The blood-sucking insects of the subfamily Triatominae are vectors of the Chagas disease, an infection caused by the protozoan *Trypanosoma cruzi* (Chagas, 1909), which is transmitted to humans and other mammals through the feces of infected insects of this subfamily. Currently, this group of vectors consists of 151 extant and three fossil species assigned to five tribes (Justi and Galvão 2017, Dorn et al. 2018, Oliveira et al. 2018, Lima-Cordón et al. 2019, Poinar Jr 2019, Nascimento et al. 2019). The tribe Bolboderini Usinger, 1944 has been considered a monophyletic group, and includes the genera *Bolbodera* Valdés, 1910, *Belminus* Stål, 1859, *Microtriatoma* Prosen & Martínez, 1952, and *Parabelminus* Lent, 1943.

The genus *Microtriatoma* Prosen & Martínez, 1952 is well characterized and can be easily differentiated from other triatomine genera. The body is strongly flattened and 7–8 mm long in adults. Their basic color is black to brown. Their various body regions have distinct, short setae. *Microtriatoma* did not lose its scutellar spine; the absence of denticles on the femora and the overall small size might be taken to be apomorphic characters (Lent and Wygodzinsky 1979). Another interesting characteristic is that nymphs of all instars of *Microtriatoma* and *Parabelminus* Lent, 1943 have three pairs of "fossula spongiosa" as in adults; this is a condition unique in the subfamily. Prosen and Martínez (1952)

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described this genus and gave *Microtriatoma mansosotoi* as its type species. However, Lent and Wygodzinsky (1979) synonymized *M. mansosotoi* with *M. trinidadensis* (Lent, 1951).

Microtriatoma trinidadensis has been reported in Brazilian states of Mato Grosso, Pará, and Tocantins and the neighboring countries of Bolivia, Colombia, French Guiana, Peru, Trinidad, and Venezuela, where it lives in bromeliads, palm trees, trees, and bird nests (Galvão 2014). Literature on *Microtriatoma* is scarce, other than the original descriptions, and the genus is among the least known of the triatomines. De la Riva et al. (2001) collected adult and nymphs of *M. trinidadensis* from a peridomestic habit in Bolivia. Gaunt and Miles (2000), researching on wild triatomine ecotypes, reported the presence of *M. trinidadensis* in the Amazon forest biome, but they did not inform the local of registration. Doctor Fernando Abad-Franch through personal communication to Gil-Santana (2014) reported the occurrence of *M. trinidadensis* in Novo Airão, Manaus.

Here we report the first record of this species in the state of Amazonas, within the Amazon region, Brazil, where in recent years there have been several new reports of other triatomine species (Ferreira and Souto 2013, Obara et al. 2013, Gil-Santana et al. 2014, Meneguetti et al. 2011, 2015, Terrasini et al. 2017, Rosa et al. 2017, Ramos et al. 2018, Castro et al. 2018). The occurrence of sylvatic species invading human dwellings is a major difficulty for vector surveillance programs and a challenge for understanding the magnitude of the risk of *Trypanosoma cruzi* transmission.

Methods

The community of Monte Sião is located in Codajás municipality, in Amazonas state (Fig. 1). The municipality belongs to the intermediate geographic region of Manaus, which is included in the mesoregion of the Amazonian Center. The regional climate is characterized by two seasons (dry winter and rainy summer).

During routine inspection conducted by the Fundação de Vigilância em Saúde in April 2010, the specimen of *Microtriatoma* was collected manually in a peridomestic habitat. The specimen (Fig. 2) was studied externally and identified as *Microtriatoma trinidadensis* using the dichotomous keys of Galvão (2014) and description by Lent and Wygodzinsky (1979). The specimen was deposited in the collection of the Instituto Nacional de Pesquisas da Amazônia, in the city of Manaus, state of Amazonas.

Results

New record. Brazil: Amazonas: Codajás: Monte Sião community (03°42′17.2″S, 062°10′50.5″W), collected by Monte GLS and Fundação de Vigilância em Saúde agents, April 2010 (1 ♀, total length 7.5 mm; INPA).

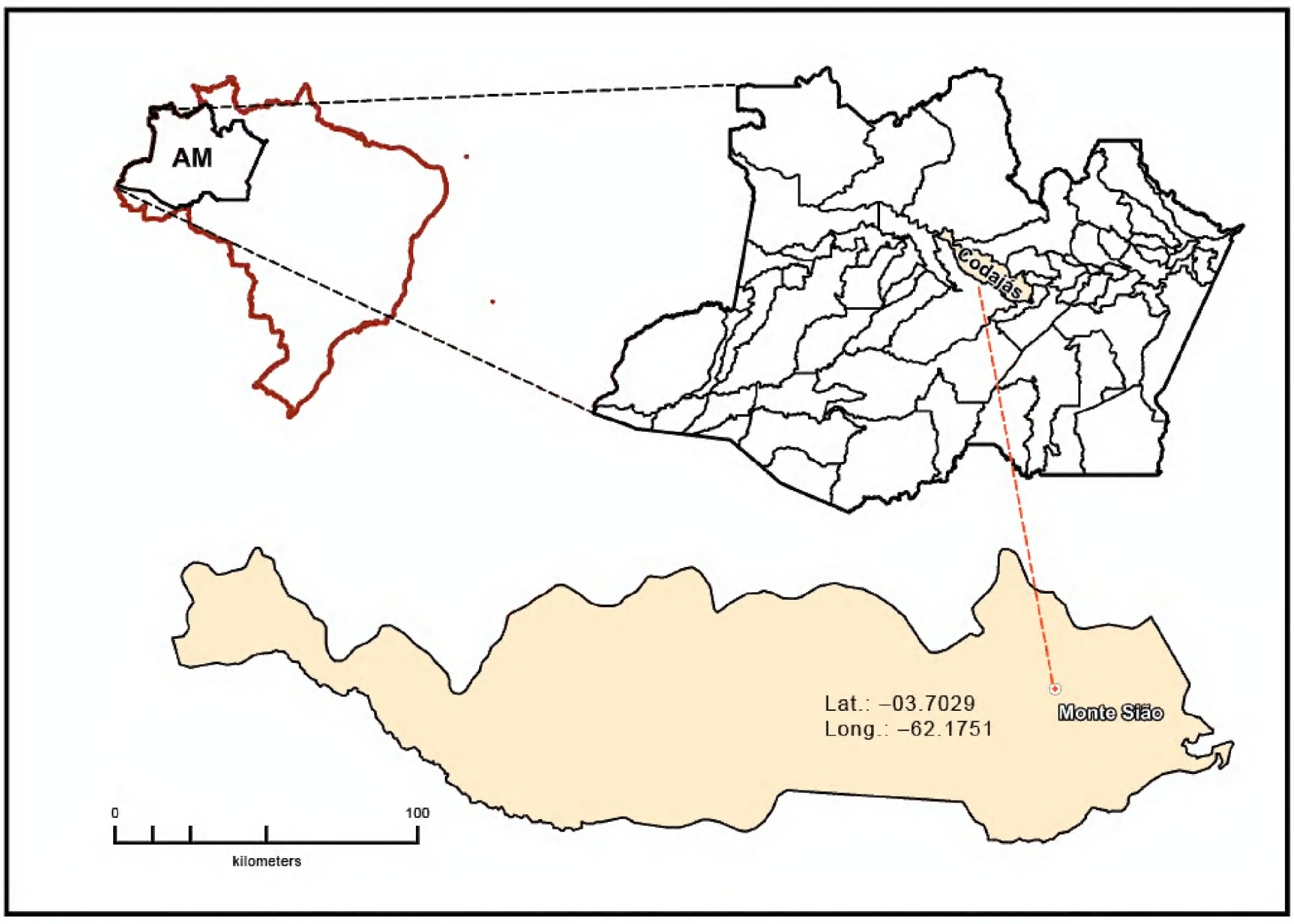

Figure 1. Community of Monte Sião (03°42′17.2″S, 062°10′50. 5″W), in Codajás municipality, Amazonas state, Brazil.

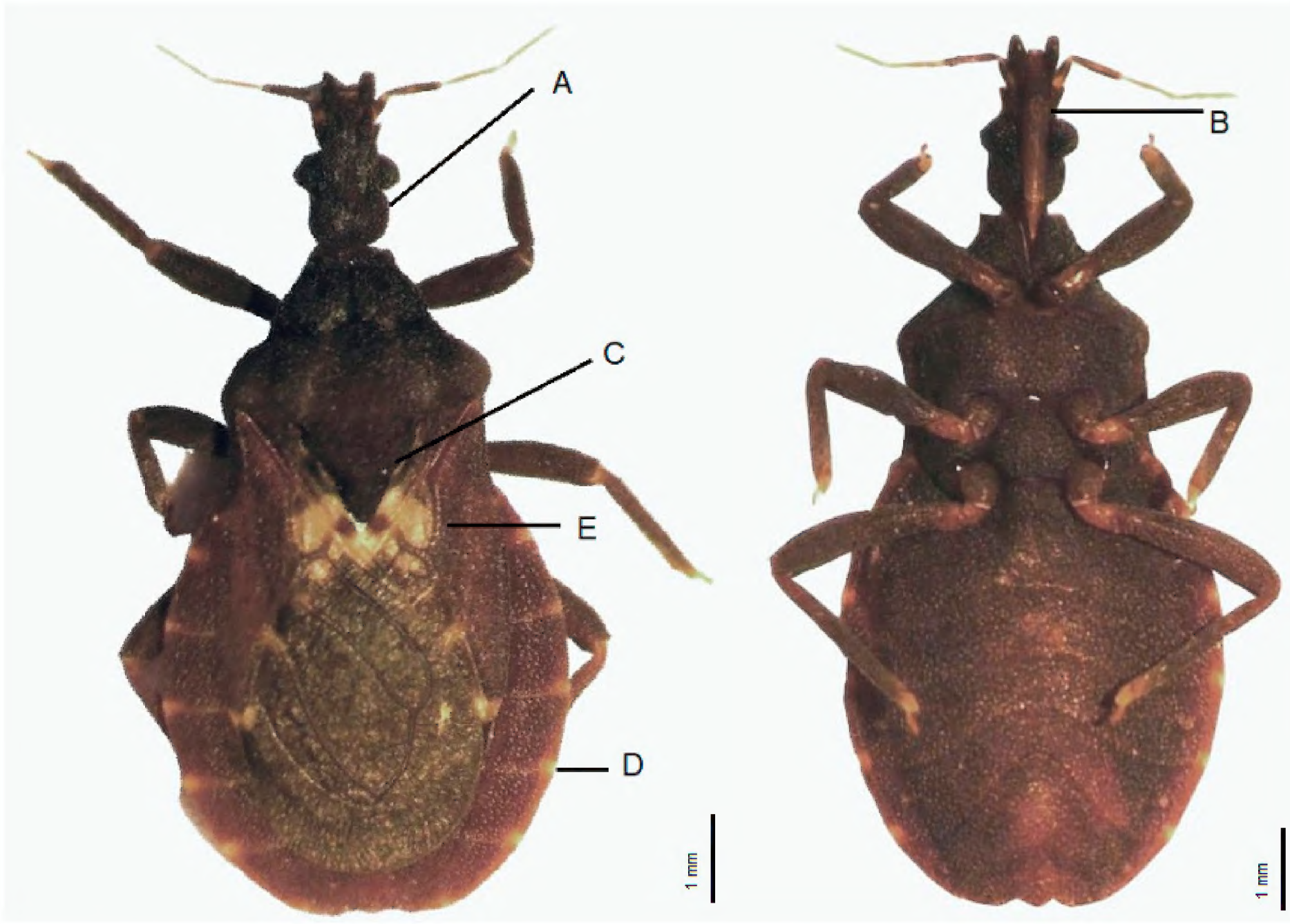

Figure 2. The morphological criteria for identification of *M. trinidadensis*. **A.** Postocular region invariably wider than long. **B.** Third rostral segment much shorter than first. **C.** Scutellum with disc depressed at the center. **D.** Connexivum dorsally and ventrally with narrow transversal yellowish bands before each intersegmental suture, widest near the outer margin of connexival segments. **E.** Membrane of hemelytra speckled with light and dark (pale spots).

The specimen was collected in dried straw and foliage of açai palm, *Euterpe precatoria* Mart. (Palmae) in a peridomestic habitat during the harvest. At the time, the air temperature recorded as 32 °C and the relative humidity 77%.

Identification. Brownish body color and slightly darker head, with appressed setae. Postocular region wider than long. Pronotum of general body color, sides of anterior and posterior lobes almost continuous, not forming a conspicuous angle. Anterolateral angles of pronotum from blunt to distinctly pointed. Scutellum with disc depressed at the center. Connexivum dorsally and ventrally with narrow transversal yellowish bands before each intersegmental suture, widest near the outer margin of connexival segments. Membrane of hemelytra speckled with light and dark (pale spots), diagnostic of *M. trinidadensis*.

Discussion

The specimen of *M. trinidadensis* was collected in the açai palm, a species that is associated with cases of Chagas disease in the northern Amazon (Beltrão et al. 2009, Nóbrega et al. 2009). The occurrence of *M. trinidadensis* in this palm could be an epidemiological alert,

Figure 3. Type specimen of *M. trinidadensis* deposited in the Triatominae Collection at the Oswaldo Cruz Institute (CTIOC), Rio de Janeiro, Brazil.

as it is a vector species of *Trypanosoma cruzi*, which is mainly found in palms, trees, and birds nests and, thus, increases the possibility of oral transmission of Chagas disease in the state of Amazonas.

Gaunt and Miles (2000) studied wild ecotypes of triatomines and reported the presence of *M. trinidadensis* in the Amazon forest biome in nests and refuges of *Didelphis* sp., but they did not inform any characteristics of the place. Therefore, our record is the first for this species in the state of Amazonas. The presence of another species of triatomine in the state Amazonas has increased the total number of species from ten to eleven.

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Authors' Contributions

GLSM conducted the fieldwork; VFP and CG contributed to the preparation of the manuscript and reviewed the text; ESS studied the specimen and reviewed the text.

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